Subject: CDF question Posted by thompson on Wed, 27 Dec 1995 08:00:00 GMT View Forum Message <> Reply to Message

Please excuse me if this is a little outside the scope of this newsgroup, but I couldn't find one specifically for Common Data Format.

I'm reading some FITS binary table files that were converted from CDF format. The original CDF files have descriptions such as

```
! Variable
                                           Dim
             Data
                        Number
                                 Record
                        Elements Variance
                                           Variance
! Name
             Type
  "LAT_SPACE" CDF_REAL8
                                              F
! Attribute Data
                   Value
! Name
          Type
 "FIELDNAM" CDF CHAR
                          { "Heliographic Lat of the Craft" }
 "VALIDMIN" CDF_REAL8
                          { -1.570796327 }
 "VALIDMAX" CDF REAL8
                         { 1.570796327 }
 "SCALEMIN" CDF REAL8
                          { -1.570796327 }
 "SCALEMAX" CDF_REAL8
                          { 1.570796327 }
                          { "Helio Lat" }
 "LABLAXIS" CDF_CHAR
 "UNITS"
          CDF CHAR
                        { "rad" }
 "FORMAT" CDF_CHAR
                          { "F7.3" }
 "DEPEND_0" CDF_CHAR
                          { "Epoch" }
 "FILLVAL" CDF_REAL8 { -1.0E31 }
                          { "data" }
 "VAR_TYPE" CDF_CHAR
 "DICT KEY" CDF CHAR
                          { " " }.
```

It appears that the data in the FITS binary table file has the same resolution as that given in the FORMAT statement, rather than the full resolution of the Real\*8 data type. In the above example, the numbers are quantized to 0.001 radians, even though the double precision numbers are theoretically much more precise than this.

I'm not very familiar with CDF, so I have some simple questions:

- 1. Are all CDF files written out to the resolution given by the FORMAT statement? Or is there a mode of writing CDF files that automatically applies this quantization?
- 2. If not, is it possible that the process of reading the CDF file unintentionally quantized the values? In other words, is there a mode of reading CDF files that automatically applies this quantization?

3. Failing the above two possibilities, is it standard practice for CDF files written by some of the groups here at Goddard to write out data to a quantization given by the FORMAT specification.

Please excuse these possibly naive questions.

Thank you,

Bill Thompson

Subject: Re: CDF question

Posted by davidf on Mon, 12 Apr 1999 07:00:00 GMT

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Harald Frey (hfrey@ssl.berkeley.edu) writes:

- > I found at least the solution for the first problem. In some way IDL is
- > sensitive to upper/lower case
- > statements in that case. I have a variable in the cdf-file 'EPOCH'.

>

- > IDL> print,!version
- > { sparc sunos unix 5.1 Apr 13 1998}
- > IDL> id=cdf\_open('WIC')
- > IDL> result2=cdf\_varinq(id,1)
- > IDL> print,result2.name
- > EPOCH
- > IDL> var=result2.name
- > IDL> cdf\_control,id,variable=var,get\_var\_info=info
- > IDL> help,info,/struc
- > \*\* Structure <83850>, 7 tags, length=28, refs=1:
- > EXTENDRECS LONG 0
- > MAXALLOCREC LONG 3
- > MAXREC LONG 3
- > MAXRECS LONG 3
- > NINDEXENTRIES LONG 2
- > NINDEXRECORDS LONG 1
- > PADVALUE INT 0

>

- > Everything works in this case. However, if I specify the variable var in
- > lower

File names on UNIX systems are \*always\* case sensitive. And string comparisons in IDL are \*always\* case sensitive, since an uppercase letter has a different ASCII value than a lowercase letter.

Cheers.

## David

--

David Fanning, Ph.D.

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Coyote's Guide to IDL Programming: http://www.dfanning.com/

Toll-Free IDL Book Orders: 1-888-461-0155

Subject: Re: CDF question

Posted by Harald Frey on Mon, 12 Apr 1999 07:00:00 GMT

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## Harald Frey wrote:

> I started working with CDF files and encountered two problems/questions.

> > 1.

- > IDL> id=cdf open('WIC')
- > IDL> cdf\_control,id,variable='epoch',get\_var\_info=info
- > % CDF CONTROL: Must specify a variable via VARIABLE keyword.
- > % Execution halted at: READ THE WIC CDF 26 read the wic cdf.pro
- > % \$MAIN\$

>

> I think I have specified a variable 'epoch'?

>

- > 2. I have several variables in a CDF record of different size (2D
- > arrays, single numbers etc.). The procedure CDF\_VARGET requires keywords
- > interval and offset. How do I specify these vectors in a universal
- > manner?

>

> I would very much appreciate getting an example program.

>

- > Harald Frey
- > Space Sciences Laboratory
- > UC Berkeley

>

> hfrey@ssl.berkeley.edu

I found at least the solution for the first problem. In some way IDL is sensitive to upper/lower case statements in that case. I have a variable in the cdf-file 'EPOCH'.

IDL> print,!version { sparc sunos unix 5.1 Apr 13 1998} IDL> id=cdf\_open('WIC') IDL> result2=cdf\_varing(id,1)

IDL> print, result2.name **EPOCH** IDL> var=result2.name IDL> cdf\_control,id,variable=var,get\_var\_info=info IDL> help,info,/struc \*\* Structure <83850>, 7 tags, length=28, refs=1: **EXTENDRECS** LONG 0 3 MAXALLOCREC LONG MAXREC LONG **MAXRECS** LONG 3 2 NINDEXENTRIES LONG NINDEXRECORDS LONG

INT

Everything works in this case. However, if I specify the variable var in lower

case letters, then I get this stupid and misleading error message.

0

IDL> var='epoch'

PADVALUE

IDL> cdf\_control,id,variable=var,get\_var\_info=info

% CDF\_CONTROL: Must specify a variable via VARIABLE keyword.

% Execution halted at: \$MAIN\$

I don't fully understand this behaviour. Maybe it's UNIX related? But cdf-files

should be platform compatible. However, I found my way around it and don't care

much more.

Harald

Subject: Re: CDF question

Posted by davidf on Mon, 12 Apr 1999 07:00:00 GMT

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Harald Frey (hfrey@ssl.berkeley.edu) writes:

- > I agree, that string comparisons are case sensitive. However, the online
- > documentation for cdf control:

Oh, well, on-line documentation...

This is not my favorite subject right at the moment. :-(

Cheers.

## David

David Fanning, Ph.D.

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Subject: Re: CDF question

Posted by Harald Frey on Mon, 12 Apr 1999 07:00:00 GMT

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## David Fanning wrote:

- > File names on UNIX systems are \*always\* case sensitive.
- > And string comparisons in IDL are \*always\* case sensitive,
- > since an uppercase letter has a different ASCII value than
- > a lowercase letter.

> Cheers,

>

> David

I agree, that string comparisons are case sensitive. However, the online documentation for cdf\_control:

- > VARIABLE
- > Set this keyword to a name or index to set the current variable. For example,

> CDF CONTROL, id, VAR='MyData', SET INITIALRECS=20

> specifies that the variable MyData should have 20 records written to it initially.

did not sound like a string comparison to me.

Harald

hfrey@ssl.berkeley.edu